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## ABSTRACT

This booklet discusses the importance to adolescents and adults with mental retardation of learning how to respond correctly to the many variations in home, work, and community activities in order to be successful in integrated settings. The difficulties individuals with mental retardation have in generalizing skills learned in one situation to a new situation are described, and step-by-step guidelines for implementing a general-case instruction process are provided. Steps include: (1) define the range, including the activities to be taught and the desired extent of generalization; (2) document the variation in relevant cues and how to respond to them; (3) select teaching and testing examples for generalization; (4) sequence the teaching examples so that differences among them are highlighted; (5) teach using the teaching examples and use instructional strategies such as prompting strategies, positive reinforcement, and error correction; and (6) test for generalization. The benefits of using general-case instruction are explained and strategies for organizing and simplifying are provided. A case example of an adult with mental retardation is provided to illustrate the use of general-case instruction. An appendix includes forms for use in conducting a general-case analysis. (Contains 28 references.) (CR)

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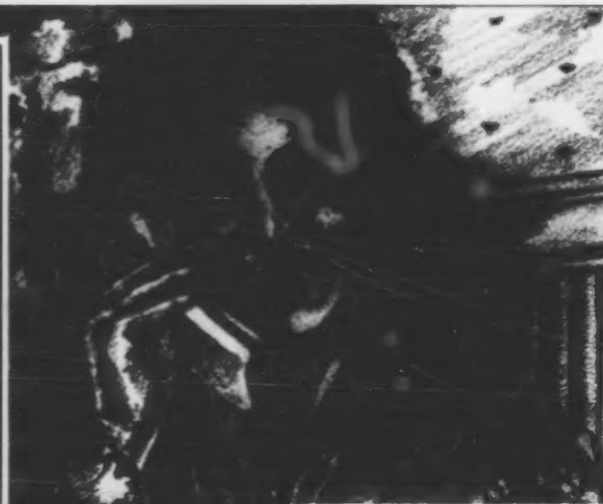
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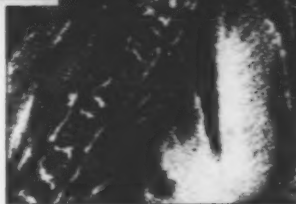
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## Increasing Variety in Adult Life: A General-Case Approach

Daniel E. Steere



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# **Increasing Variety in Adult Life: A General-Case Approach**

Daniel E. Steere

Diane Browder  
Editor, *Innovations*

American Association on Mental Retardation

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# Introduction

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*We are at a disadvantage if we can respond only to single, unchanging cues. We need to respond to classes of stimuli or cues that share similar features.*



To be successful in integrated environments, adolescents and adults with mental retardation must correctly respond to the many variations in home, work, and community activities. If ignored by support professionals, even subtle variations can create difficulties for adults with disabilities. For example, it is insufficient to know only one type of rest room sign, to be able to cross only streets with one-way traffic, to be able to order only one type of meal in a restaurant, or to ask for assistance in only one way. The ability to respond to this variation expands choices and opportunities at work, in the community, and at home.

## Generalization: Responding to Change

In its broadest sense, generalization can be defined as the ability to apply skills learned in one situation to new situations that arise. Greeting someone you have not met before, driving a new car, or making a purchase in a new store are all examples of generalization of previously learned skills. We are able to respond appropriately in new situations such as these because we have come to learn that they share features with a "class" of similar situations. For example, car driving is a class of activities. Driving one car differs from driving another (different locations of dashboard controls, gear-shifting mechanisms, or sizes), but all car driving involves similar action. Similarly, greeting people is a class of activities. Expectations vary from one situation to another depending on whether we know the

person we are greeting, the person's age, and maybe social status. We respond one way when we meet our closest friend and another way when we meet a new supervisor. We generalize basic greeting skills to the situation at hand.

At the heart of generalization is the relationship between the stimuli or cues in the environment and our response to relevant cues; we learn to respond to the relevant cues while ignoring other cues. For example, when we greet an old friend arriving at an airport, we may see many people get off the plane. We greet only our old friend, however, because his or her face is the relevant cue for our response. Similarly, we do not give our money to just any person in a store, but to the person behind the counter and next to the cash register. Certain cues are more important than others and provide us information about when and how to (or not to) respond.

In our complex society, we are at a disadvantage if we can respond only to single, unchanging cues. We need to respond to classes of stimuli or cues that share similar features. Of course, we may need to adjust our responses slightly in each situation. We are able to generalize our abilities as we recognize classes of relevant cues and respond appropriately. We generalize our ability to pay for items in a store by recognizing that a person behind the counter and next to a cash register is likely a salesperson. Because this type

of generalization centers on the ability to respond to changing cues (stimuli), it is often called stimulus generalization.

It is well documented that people with mental retardation may find it difficult to generalize skills learned in one situation to a new situation. This difficulty often results from the individual's inability to respond to classes of cues. An individual may know how to obtain a beverage from one vending machine but not from a slightly different machine. Promoting generalization presents challenges to instructors (i.e., teachers, employment specialists, residential support professionals), because providing direct instruction in all potential situations may not be feasible or practical. Such instruction may even be a lifelong endeavor, because adults with mental retardation will continue to encounter new situations. In short, people with mental retardation usually require systematic and proactive instruction to ensure the development of their ability to respond to novel situations. We must not assume that people will generalize their skills to new situations; rather, we must verify that they can do so.

## **Responding to Variation Through General-Case Instruction**

General-case programming is an effective strategy to teach people with disabilities to generalize responses across a class of activities. With this strategy, we conduct detailed analyses of various ways in which an activity might need to be implemented. Based on this analysis, we identify a class of relevant cues and corresponding responses and then select key examples to be used for teaching. We identify additional test examples or "probes" to verify the extent of the person's generalized abilities. General-case programming

Teaching for generalization has been an ongoing focus of research with people with disabilities. Stokes and Baer (1977) documented nine approaches to generalization, which ranged from very systematic ("programming common stimuli") to unsystematic approaches ("train and hope").

Engelmann & Carnine (1982) used general-case instruction to teach academic skills such as reading and math. For example, to improve symbol-to-sound correspondence students were taught to recognize a letter in all configurations. This line of research was extended by Horner and colleagues to teaching community living skills to people with severe disabilities.

has been used to teach academic skills and community activities such as crossing streets, using liquid soap dispensers, operating vending machines, using telephones, opening beverage containers, putting on pullover shirts, busing tables in a cafeteria, and selecting grocery items. Additionally, this approach has been used to teach a variety of vocational skills. Recently general-case programming has been used to teach behaviors, such as requesting assistance and communicating in a socially acceptable manner, as alternatives to disruptive behavior.

Recent research indicates that, by conducting careful analyses of local communities and then teaching essential examples of activities, we can enhance generalization to address new situations that may be encountered. There are a number of clear advantages for us in using general-case programming:

- We learn more about the changes and variation in the communities in which we, and the people we teach, live. This allows us to be better instructors because we know what people need to learn to be successful at any given time.
- We can directly teach people to respond to variation instead of simply hoping that they will generalize their skills. We provide people

with skills that will serve them well in many situations.

- We use a structured and systematic approach to selecting teaching materials and locations. This replaces a trial-and-error approach and allows us to be more efficient and successful instructors.

General-case instruction relies on the identification of variations in numerous community activities. We determine the different cues and responses needed if someone is to participate in preferred activities. Although this investigation may take time, the investment is well worth the effort, because it allows adults with mental retardation to learn to respond to the many variations they may encounter in the community and at work.

## The Purpose of This Book

The purpose of this book is to alert you to the powerful instructional technology of general-case programming. In addition, this book will provide step-by-step guidelines for implementing the general-case instruction process and show how the process can be used across a variety of activities of adult living. Finally, you will be directed to other sources of information so that you can enhance your own professional development in terms of this approach.

Four key premises underlie the guidelines in this book. First, generalization instruction is only one part of a broader set of strategies and supports to enhance the success of people with mental retardation. Natural supports and advocacy from friends and family are equally important.

Second, the responsibility for providing direct instruction for the development of generalized abilities rests in large part with direct service professionals. We must actively teach people to

respond to the variation they will encounter in community life.

Third, variation does exist in most adult activities, and the environments in which most people live, work, and recreate are continually changing. For this reason, generalized responding is a key element of success in integrated places of work, schools, communities, and neighborhoods.

Fourth, the ability to respond to new situations is closely tied to the important issues of choice making and self-determination. When we can respond correctly to changes in our communities and places of work, we have expanded options for making choices and decisions for ourselves about how to respond.

Consider Sam, a young adult with mental retardation. It appears as if Sam "does the same thing" each day, as he gets up, gets dressed, eats breakfast, catches the bus to his job, completes his work duties, and so on. But his life could be richer if he were able to generalize learned skills. Think in terms of

- preparing and eating a different breakfast of his choice each day;

- choosing to wear different clothes to work;
- taking a different bus if it fits within his schedule;
- completing new work tasks that are assigned to him by his supervisor;
- working and interacting with new co-workers;
- having new conversations during break time;
- choosing new lunches and break time snacks; and
- using the money he receives from work to make purchases of different items in the grocery store.

People with mental retardation who can respond successfully to variation in community life have at hand an expanded range of choices and opportunities. In addition, they may require less external support as they participate in integrated employment and community activities, and they may be more independent within their own homes. Most important, they can meet change and variation as an opportunity and not as a threat.

## How to Use General-Case Instruction

---

*General-case programming  
increases instructional  
efficiency.*



To be successful and have maximum choice and participation, adolescents and adults with mental retardation should be directly taught to respond to the variation in their environments.

As introduced in chapter 1, general-case instruction is a teaching strategy used to increase the likelihood that an individual will be able to complete successfully newly encountered activities. In this chapter, I describe the basic steps of the general-case approach and then apply the steps to activities in the home, on the job, and in the community. Additionally, I present guidelines for using general-case programming.

Robert Horner and his colleagues at the University of Oregon developed a set of guidelines or steps for using general-case instruction. These steps are shown in Table 1.

These six steps form the heart of the general-case approach and will be the basis for the rest of this book.

### Step 1: Define the Range

Define the range of situations to which the individual must generalize.

The first step of the general-case instruction approach involves identifying (1) the activities to be taught and (2) the desired extent of generalization. The activities should be chosen by the individual and/or be activities that contribute in

Table 1

## Steps for Using General-Case Instruction

**Step 1:** Define the range of situations to which the individual must generalize.

*Question: What activity does the individual want or need to learn and in what specific geographic locations will the activity need to be performed?*

**Step 2:** Document the variation in relevant cues and how to respond to them.

*Question: What variation exists in the important steps of the activity and in the cues for implementing each step?*

**Step 3:** Select teaching and testing examples.

*Question: What minimal number of teaching examples and corresponding testing examples should be selected that contain the most variation?*

**Step 4:** Sequence the teaching examples.

*Question: How should the teaching examples be sequenced to best emphasize variation and to distinguish correct responding from incorrect responding?*

**Step 5:** Teach using the teaching examples.

*Question: What instructional strategies should be used to assist the individual in learning to complete the teaching examples most quickly and efficiently?*

**Step 6:** Test for generalization using the testing examples.

*Question: How many of the generalization test examples is the individual able to complete before and after mastery of the teaching examples, and what error patterns are noted?*

*Adapted from Horner, Sprague, and Wilcox, 1982.*

some way to the person having a richer and more integrated lifestyle.

*Question: What activity does the individual want or need to learn and in what specific geographic locations will the activity need to be performed?*

### **What to Teach?**

This question focuses first on what needs to be taught. Potential target activities subject to variation fall into the general domains of employment, home living, and community participation.

In integrated employment environments, many activities may be performed in multiple

ways. Activities such as opening doors or cabinets, using telephones, identifying rest rooms, using fixtures in rest rooms, using vending machines, and using office equipment may all vary from setting to setting. In addition, interaction skills, such as asking for assistance or greeting co-workers or supervisors, may be performed in varying ways. And travel activities, such as taking the correct bus, often require varied performance.

At home, dressing, meal preparation, food storage, and cleaning activities are all performed in multiple ways. Social interaction activities, particularly via telephone, may also vary.

In the community, purchasing activities, street-crossing activities, and use of equipment, such as banking machines or public telephones, can be performed in multiple ways.

As may be seen in this brief list, many if not most activities in the work place, home, and community contain variation. Those that do not vary on a daily basis may be subject to periodic change, as when a new vending machine is installed at a work place or a new co-worker arrives. It is important to consider generalized skill development when reviewing educational and adult service plans, such as IEPs and IHPs. Here you might well identify objectives that call for the development of activities subject to variation. Let's say cooking a meal is an objective. Looking for an opportunity to teach a generalized skill, you could investigate the range of meals the individual wants to learn to cook at home or at work. Similar opportunities exist for objectives related to asking for help or interacting with others.

As you consider objectives on service plans, note that some people with more severe disabilities may need to work on only specific parts or steps of a more complex activity. For instance, as part of the more complex activity of grocery shopping, an individual may have an objective of paying for several items in a grocery store.

### ***In What Situations?***

The second part of this question involves identifying the specific geographic areas to which the person must generalize his or her abilities. In what places does this person currently spend time or in what places does this person have a high likelihood of spending time? Consider the example of learning to cross streets. An individual who lives, works, and recreates in a specific urban area would need to be able to respond to the variety of streets in that environment. In this situation, you could specifically define the area

within which the person should be able to cross streets (for instance, all streets within a 10-block radius around her home). Similarly, it may be determined that the individual should be able to greet all co-workers within his place of work.

## **Step 2: Document the Variation**

Document the variation in relevant cues and how to respond to them.

During the completion of this step you become a keen observer and investigator. In conducting this investigation, you analyze the different ways that selected activities are completed by most people in the identified geographic areas. It is essential that you complete this step only after you have gone out and actually spent time in the identified places. *This step cannot be completed from an office!* You can document variation only by looking for it. Although somewhat time consuming, this process increases the likelihood that functional activities will be taught.

*Question: What variation exists in the important steps of the activity and in the cues for implementing each step?*

Activities targeted for teaching must first be broken down into their component steps. I suggest a straightforward and simple task analysis approach. That is, in sequential order list the key generic or basic steps of the activity. However, to answer this question, the basic steps of the activity common to *all* examples are listed. For instance, the basic steps of using a coin-operated vending machine are as follows:

1. Approach the machine.
2. Make a selection.
3. Determine the price and check for sufficient money.
4. Insert the correct amount of money.

5. Activate the machine to select an item.
6. Retrieve the item.
7. Check for change.

Similarly, these are generic steps for greeting an individual:

1. Approach the individual and establish eye contact.
2. Verbally greet the individual and shake hands or hug, as appropriate to the situation.
3. Listen for a response to the greeting.

In each of these examples, these basic or generic steps could be used in completing the activity in virtually any setting.

In any complex task, certain cues provide information about how an individual should or should not respond. Consider the activity of crossing a street: Before we move into the street, we note the presence or proximity of oncoming traffic, and we may look for a WALK signal, if there is one. The WALK signal and the sounds and sight of oncoming traffic are generic cues that provide information about this particular step of the complex task of crossing a street. For each step in a generic task analysis, the instructor identifies one or more key relevant cues that provide information about the completion of the step.

Table 2 shows a generic task analysis of the street-crossing activity. It also includes key generic cues that provide information about how to complete each step. How do you locate a safe place to cross? You look for cues evident at a corner, crosswalk, or traffic signal light. The direction and amount of traffic and the activation of a green light or WALK signal may provide information about when it is safe to cross. Finally, the duration of the traffic signal light, the speed of oncoming traffic, and the number of lanes provide cues about how quickly you should cross

to the other side. A second example of the activity of greeting a co-worker is provided in Table 3 to show how the process occurs with a social interaction activity.

Once you have identified each of the generic cues, you will need to document the variation in these cues across the geographic area that you have identified and targeted. Table 4 contains descriptions of several streets investigated within six blocks of a university campus. These streets reflect the range of types of streets that are encountered within that area.

I suggest you *write down* (as in Table 4) variation in generic cues from site to site to provide you with ready information about the range of situations. This variation includes the presence or absence of WALK or traffic signals, the number of lanes, and the amount and speed of traffic.

Once you have documented the variation in the cues for each step of the activity, write down how the response has to be varied from site to site. Table 5 shows the range of responses for the variation found at the six intersections investigated around the university campus. Clearly, even within this small geographic area, performance must be varied for successful street crossing. For example, as shown in Table 5, the performance of Step 2, check for traffic, would vary depending on the direction of traffic (one-way or two-way).

A final consideration in completing this step relates to potential cue exceptions or response errors that may occur. For example, a WALK signal may be inoperative, a car may signal a turn but fail to turn, or other pedestrians may enter a crosswalk when it is actually unsafe to do so. Similarly, in our example of greeting a co-worker or neighbor, other people may not respond because they were not listening or because they simply chose not to. In each example, these

Table 2

## Task Analysis With Generic Cues and Responses: Street Crossing

| Generic Cues                                                                                                                           | Generic Responses                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>STEP 1</b><br>Corner, crosswalk, or traffic light                                                                                   | Locate a safe place to cross the street.<br>Go to that place. (Where should I cross?)                  |
| <b>STEP 2</b><br>At the selected crossing place:<br>Direction of vehicles<br>Green light<br>Activated WALK signal<br>Amount of traffic | Check for traffic. Wait until it is safe to cross.<br>(When should I cross?)                           |
| <b>STEP 3</b><br>Length of signal light<br>Speed of oncoming or turning traffic<br>Number of lanes                                     | Move into street. Cross to the other side before<br>traffic is a danger. (How quickly should I cross?) |

Table 3

## Task Analysis With Generic Cues and Responses: Greeting a Co-worker

| Generic Cues                                                                         | Generic Responses                                                            |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>STEP 1</b><br>Voice and sight of the person to be greeted                         | Approach the individual and establish eye contact.                           |
| <b>STEP 2</b><br>Proximity of the person and his or her<br>indication of recognition | Verbally greet the individual and shake hands,<br>hug, etc., as appropriate. |
| <b>STEP 3</b><br>Completion of initial greeting                                      | Listen for a response to the greeting.                                       |

Table 4

## Variation in Cues for Streets Within a Six-Block Radius

| Intersections                                                                                                         |                                                            |                                           |                                             |                                                 |                                           |                                            |                                           |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------------|-------------------------------------------|--------------------------------------------|-------------------------------------------|
| Generic Cues                                                                                                          | Generic Responses                                          | Main/ Third                               | High/ Ninth                                 | Center/ Park                                    | Main/ Ryan                                | First/ Sect                                | Center/ 209                               |
| <b>STEP 1</b>                                                                                                         |                                                            |                                           |                                             |                                                 |                                           |                                            |                                           |
| Corner, crosswalk or traffic light                                                                                    | Locate a safe place to cross the street. Go to that place. | Traffic light<br>WALK signal<br>Crosswalk | Stop sign<br>No WALK signal<br>No crosswalk | Traffic light<br>No WALK signal<br>No crosswalk | Traffic light<br>WALK signal<br>Crosswalk | No light<br>No WALK<br>No crosswalk        | Traffic light<br>WALK signal<br>Crosswalk |
| <b>STEP 2</b>                                                                                                         |                                                            |                                           |                                             |                                                 |                                           |                                            |                                           |
| At the selected crossing place:<br>Direction of vehicles<br>Amount of traffic<br>Activated green light or WALK signal | Check for traffic & determine when it is safe to cross.    | Two-way traffic<br>Heavy WALK signal      | Two-way traffic<br>Light<br>No WALK signal  | One-way traffic<br>Moderate<br>No WALK signal   | Two-way traffic<br>Heavy WALK signal      | Two-way traffic<br>Light<br>No WALK signal | One-way traffic<br>Heavy WALK signal      |
| <b>STEP 3</b>                                                                                                         |                                                            |                                           |                                             |                                                 |                                           |                                            |                                           |
| Length of signal light or speed of oncoming traffic                                                                   | Cross to the other side.                                   | 30 sec.<br>35 MPH                         | 35 MPH                                      | 60 sec.<br>35 MPH                               | 20 sec.<br>35 MPH                         | 25 MPH                                     | 30 sec.<br>40 MPH                         |
| Number of lanes                                                                                                       |                                                            | Two lanes each way                        | One lane each way                           | Two lanes one way                               | Two lanes each way                        | One lane each way                          | Two lanes one way                         |

Table 5

## Variation in Responses for Streets Within a Six-Block Radius

|                                                                                                                       |                                                            | Intersections                                                       |                                                                      |                                                            |                                                                     |                                                     |                                                            |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------|
| Generic Cues                                                                                                          | Generic Responses                                          | Main/ Third                                                         | High/ Ninth                                                          | Center/ Park                                               | Main/ Ryan                                                          | First/ Sect                                         | Center/ 209                                                |
| <b>STEP 1</b>                                                                                                         |                                                            |                                                                     |                                                                      |                                                            |                                                                     |                                                     |                                                            |
| Corner, crosswalk or traffic light                                                                                    | Locate a safe place to cross the street. Go to that place. | Go to corner Press WALK button.                                     | Go to corner                                                         | Go to corner                                               | Go to corner Press WALK button.                                     | Go to corner                                        | Go to corner Press WALK button.                            |
| <b>STEP 2</b>                                                                                                         |                                                            |                                                                     |                                                                      |                                                            |                                                                     |                                                     |                                                            |
| At the selected crossing place:<br>Direction of vehicles<br>Amount of traffic<br>Activated green light or WALK signal | Check for traffic & determine when it is safe to cross.    | Look up & down street & for turning cars.<br>Watch for WALK signal. | Look up & down street & for turning cars.<br>Watch for cars to stop. | Look one way & for turning cars.<br>Watch for WALK signal. | Look up & down street & for turning cars.<br>Watch for WALK signal. | Look up & down street & for turning cars.           | Look one way & for turning cars.<br>Watch for WALK signal. |
| <b>STEP 3</b>                                                                                                         |                                                            |                                                                     |                                                                      |                                                            |                                                                     |                                                     |                                                            |
| Length of signal light or speed of oncoming traffic                                                                   | Cross to the other side.                                   | Cross four lanes quickly.                                           | Cross when cars stopped or when no cars coming or turning.           | Cross at green light when no cars coming.                  | Cross four lanes quickly.                                           | Cross when no cars coming on street or side street. | Cross at moderate pace.                                    |
| Number of lanes                                                                                                       |                                                            | Cross four lanes.                                                   | Cross two lanes.                                                     | Cross two lanes.                                           | Cross four lanes.                                                   | Cross two lanes.                                    | Cross two lanes.                                           |

Table 6  
**Completed General-Case Matrix Form: Street Crossing**

| Generic Cues                                                                                                                           | Variation in Cues                                                                                                         | Generic Responses                                       | Variation in Responses                                                                                                                                             | Exceptions                                        |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| <b>STEP 1</b><br>Corner, crosswalk or traffic light                                                                                    | Presence of crosswalk<br>Presence of traffic light/stop sign/<br>WALK signal<br>Proximity to corner<br>WALK signal button | Locate a safe place to cross the street.                | Go to corner.<br>Go to crosswalk.<br>Stop at side of street at corner.<br>Push WALK signal button.                                                                 | Corner obstructed<br>Signal button broken         |
| <b>STEP 2</b><br>At the selected crossing place:<br>Direction of vehicles<br>Amount of traffic<br>Activated green light or WALK signal | Lighted WALK signal<br>Auditory signal<br>Speed & amount of traffic                                                       | Check for traffic & determine when it is safe to cross. | Look one way.<br>Look both ways.<br>Look at both lanes in either direction & for turning cars.<br>Look at green light & WALK signal.<br>Listen to auditory signal. | Signal inoperative<br>View of traffic obstructed. |
| <b>STEP 3</b><br>Length of signal light or speed of oncoming traffic<br><br>Number of lanes                                            | Change in auditory or lighted signal<br>Proximity of oncoming vehicles<br>Two or four lanes                               | Cross to the other side.                                | Walk across quickly or at a moderate pace.<br>Walk halfway across, stop & wait for vehicle in other lane.                                                          | Icy surface<br>Obstruction of other pedestrians   |

described scenarios are exceptions to the expected cues. Some potential response errors may be caused by irrelevant cues. For example, a learner might follow pedestrians who entered the crosswalk at the wrong time. Because the intent of general-case instruction is to develop skills that will generalize across many situations, you should record these potential problems in writing so that you will remember to teach learners how to respond to these situations.

All of the above information can be entered and displayed on a *general-case matrix*, such as the example provided in Table 6. This matrix summarizes the variation that was discovered and allows you to complete the next step, the selection of examples for teaching and for testing for generalization.

### Step 3: Select Teaching and Testing Examples

If we could teach all examples of an activity, we could rest assured that learners would be able to respond appropriately to all the variation they will encounter. Of course, we cannot teach all examples of every activity; there are simply not enough instructional resources or time. Thus, a central feature of a general-case approach: Select the minimum number of examples that reflect the full range of situations to which the individual must generalize. Teaching examples and examples for testing for generalization must be selected in a thoughtful and careful manner. The next question guides that selection process.

*Question: What minimal number of teaching examples and corresponding testing examples should be selected that contain the most variation?*

To answer this question, you must carefully review the general-case matrix developed in Step 2. In reviewing the matrix, look for the variation that was documented across each of the generic cues. In reviewing Table 6, the general-case matrix for crossing streets in one neighborhood, it is apparent that the direction of traffic (one- or two-way traffic) and the presence or absence of a traffic light and WALK signal would be key cues to take into account. Likewise, the amount of traffic (heavy versus light). Finally, the number of lanes of traffic would be important. Because you want to select the minimal number of examples that maximally contains variation, you might select the following streets to teach:

- A one-way street with two lanes and moderate traffic volume that has a traffic light but no WALK signal.
- A two-way street with two lanes in each direction and heavy traffic volume that has a traffic signal and a WALK signal.
- A two-way street that has neither a traffic light nor crosswalk and that has light volume of traffic.

In addition, you would want to provide instruction on what to do if an error or exception occurred. Although this could be difficult to arrange (it may be hard to find a WALK signal button that is broken on a consistent basis!), efforts must be made to teach people to respond to such exceptions or circumstances.

An additional consideration: Avoid selecting examples that contain consistent extra cues that are not essential to performing the activity. Extraneous cues such as location that may have no relevance to the completion of the activity

could be mistaken for relevant cues by the learner. For example, an individual who learns to interact with co-workers only at one table in a break area may have trouble when greetings occur elsewhere. Likewise, if an individual learns to use different telephones but they are all of the same color, the individual may have difficulty when a differently colored phone is encountered. For this reason, when you select the teaching examples to be used, try to avoid having consistent cues such as color that an individual may mistake as being the most important cue.

Although the selection of teaching examples is systematic, personal judgment is a key element. Experience and practice in making selections based upon the general-case matrix is helpful. If you have done a thorough job analyzing the variation in the activity being investigated and have recorded this information in the form of a written general-case matrix similar to the one in Table 6, you are in an excellent position to select effective teaching examples. The key point is to select the minimum number of examples that sample the widest range of potential variation in the activity; this selection is based on the careful analysis completed in Step 2.

At this point, you have selected examples to be used in teaching. Once you have begun

**Sprague and Horner (1984) illustrated that teaching multiple examples of an activity that were not selected using general-case guidelines was less successful than teaching examples that sample the range of variation in cues. The key is not the number of examples selected but the degree to which they sample the full range of variation that might be encountered.**

teaching in Step 5, you will record performance data on learners' abilities to complete the tasks in the teaching examples. However, assessing learners' performance on these teaching examples will not be a good measure of their ability to generalize. For generalization test examples (probes), you should select a corresponding set of examples that reflect similar variation in cues. No teaching will be conducted using these examples, but they will provide an essential measure of the extent of generalization. To correspond to the examples selected for teaching street crossing, you could select three additional and similar streets for testing. Table 7 contains a description of the three teaching streets (sites) and the three generalization test (probe) streets. Note that, as closely as possible, the three generalization test examples correspond to the three teaching examples in terms of the extent of variation in key cues.

## Step 4: Sequence the Teaching Examples

*Question: How should the teaching examples be sequenced to best emphasize variation and to distinguish correct responding from incorrect responding?*

Up to this point, you have decided what needs to be taught (Step 1), analyzed variation in the activities to be taught (Step 2), and selected teaching and testing examples (Step 3). Before you can begin teaching (Step 5), you need to determine a teaching sequence. Should you teach your teaching examples one at a time until each is mastered, or should the examples be introduced at about the same time? Research in general-case instruction suggests that sequencing the introduction of examples so that differences (variation) among them are highlighted results in the best performance and optimum generalization.

Table 7

### Selected Sites for Teaching and for Testing for Generalization: Street-Crossing Skills

#### Teaching Examples:

1. Main/Third: Two-way traffic, two lanes each direction; traffic light with WALK signal; crosswalk; heavy traffic
2. Center/Park: One-way traffic, two lanes in one direction; moderate traffic; traffic signal light
3. First/Sect: Two-way traffic, one lane in each direction; light traffic; no WALK signal

#### Generalization Test Examples:

1. Main/Ryan: Two-way traffic, two lanes each direction; traffic light with WALK signal; crosswalk; heavy traffic
2. High/Ninth: Two-way traffic, one lane in each direction; stop sign; light traffic
3. Center/209: One-way traffic, two lanes in one direction; heavy traffic, crosswalk; traffic light and WALK signal

Although it may appear appropriate to teach each example one at a time until it is mastered, this approach tends to result in error patterns that slow the learning process. For example, a learner who is taught to cross one-way streets first will develop the error pattern of looking only one way (a potentially fatal error!). Likewise, an individual who is fully taught to identify the correct rest room at her place of work before being taught other examples may make the mistake of assuming that the door to the left is always the one to enter.

These examples illustrate that instruction on several teaching examples should begin at about the same time; this is preferable to a learner trying to master one example before going on to the next. In the street-crossing example, instruction on all three teaching streets described in Table 7 would begin simultaneously. First, you would take the individual to the first targeted intersection (Main and Third) and conduct instruction on how to safely cross a two-way street with heavy traffic and a WALK signal. Then, within the same teaching session, you would take the individual to the next site (Center and Park) to teach him to cross this street. While conducting this teaching, you will be able to point out differences between the two examples. ("Look! This street has no WALK signal.") Finally, within the same teaching session (if possible), you would begin instruction on the third street (First at Sect), again pointing out similarities and differences among the examples.

You may have selected more teaching examples than can be introduced at one time. For example, if our analysis of streets had led us to select five examples, it might be difficult to begin teaching on all five in one session. So three might be introduced first, and additional examples added soon after. Instruction on all examples

would continue in a cumulative manner, with differences and similarities being highlighted.

Certain cues share common features with other cues. For example, an individual who completed the activity of using an automatic dishwasher at home mistook a box of bleach for powdered dish soap. In another example, an individual who was shopping for groceries using a written list of five items mistakenly selected a box of Maypo cereal instead of mayonnaise. The nature of these errors highlights the importance of including negative examples in instruction, as people will need to be able to distinguish not only large differences among cues but also more subtle differences. In the activity of learning to cross a street, the negative example of the DON'T WALK signal shares similar features to the WALK signal: Both have lighted letters; they are located in the same traffic fixture. For this reason, in conducting your teaching you would contrast the negative example (DON'T WALK) with the positive example (WALK) by specifically highlighting the differences between them. To do this you might focus the learner's attention on the number of words (one versus two) or on the beginning letters (W versus D). Assuming that the position of the two signals does not change, this could also be highlighted.

In short, do not simply ignore the negative example; rather, highlight the differences between it and the positive example to which you want the person to respond.

**The importance of incorporating negative teaching examples was illustrated by Horner, Eberhard, and Sheehan (1986) who used both positive and negative examples in teaching table-busting skills.**

## Step 5: Teach Using the Teaching Examples

*Question: What instructional strategies should be used to assist the individual in learning to complete the teaching examples most quickly and efficiently?*

Steps 1 through 4 have all been conducted in preparation for the beginning of actual teaching. Now, in Step 5, you use all of this information to teach learners to complete the targeted activities. This step draws on effective instructional strategies. Although it is not my intent to cover all such strategies in detail, I here provide a brief discussion of some important instructional strategies.

### **Prompting Strategies**

Prompting strategies are used to draw learners' attention to important cues to prompt responses. Prompts may be provided verbally ("Look both ways and look for cars coming"), through gestures, or through physical assistance. Diagrams and pictures are also potentially effective prompts. The selection of prompts should be based on the individual's learning style and history. Typically, you will have a good idea about how to best prompt the individual. Prompts may be arranged into a sequence or hierarchy, in which additional information is added with each additional prompt. For example, the following is a least-to-most-intrusive prompting sequence that might be used in teaching street crossing:

- Wait a few seconds to let the individual respond to the cues of the lighted WALK signal and the cars stopping to see if she will correctly respond without your assistance.
- If the learner does not respond, provide the first prompt. "Look: The WALK signal is lighted. The cars are stopped." Wait a few seconds for the individual to respond to this prompt.

- If the individual still does not respond, provide an additional prompt. For example, repeat the verbal prompt while pointing to the lighted signal. Again, provide additional time for the individual to respond.
- If no correct response occurs, provide the final level of prompt. In this situation, it would be appropriate to state "The WALK signal is lighted; let's check for moving cars and then cross," while physically prompting the individual to enter the crosswalk.

### **Positive Reinforcement**

Another key instructional strategy is to provide positive reinforcement for correct responses. Typically, this involves giving verbal praise after correct responses, but other reinforcers such as preferred activities may be used. For example, an individual may find instruction in street crossing to be a more pleasurable experience if she is walking to the store to buy a preferred snack.

### **Error Correction**

A third instructional strategy is the use of error correction. As stated earlier, the people you support need to learn how and when to respond and not respond to cues. Providing specific feedback on errors is an important strategy. For example, an individual who inappropriately enters the crosswalk should be prompted to return to the curb and then provided feedback on the error. This is a good opportunity to point out subtle differences between positive and negative cues, such as the WALK and DON'T WALK signals. Sometimes specific patterns of errors will need to be corrected. Always looking one way before crossing a street is an example. Selecting multiple teaching examples using the guidelines in this publication will help reduce these errors.

## Data Collection

A fourth key teaching strategy that is essential is the use of effective data collection and graphing. When you record data on learners' performance, record *the number of teaching examples* completed correctly. Most activities have multiple steps, and being able to complete *some* of the steps is not enough. You are concerned with a learner's abilities to complete all steps across multiple examples. Consider the teaching examples in Table 7. Although there are several steps to crossing each street, what you are ultimately concerned with is the successful crossing of these three streets without assistance.

Observing and recording an individual's ability prior to instruction (baseline data), you may note that the individual can cross none of the streets independently. On a graph, you would record a baseline rate of zero (0) streets crossed correctly. You would then proceed with instruction until the individual could cross all three streets correctly without error, noting this on your graph. This simple way of collecting data focuses on the important outcome, that is, the ability to complete an activity.

This section has provided a very brief overview of some of the important teaching strategies that are used in teaching learners to complete the teaching examples correctly. You should refer to other resources, including other *Innovations* publications, for more detailed discussion of these instructional strategies.

### Step 6: Testing for Generalization

*Question: How many of the generalization test examples is the individual able to complete before and after mastery of the teaching examples, and what error patterns are noted?*

In general-case instruction, the proof of the learning is in the individual's performance on generalization test examples. In Step 3 you selected a set of teaching examples and a corresponding set of generalization test examples. Now, in Step 6, you will observe and record and graph data on the individual's performance on these test or probe examples. In these generalization test examples you do not teach; you provide the individual with the opportunity to complete the test examples; you observe and record performance.

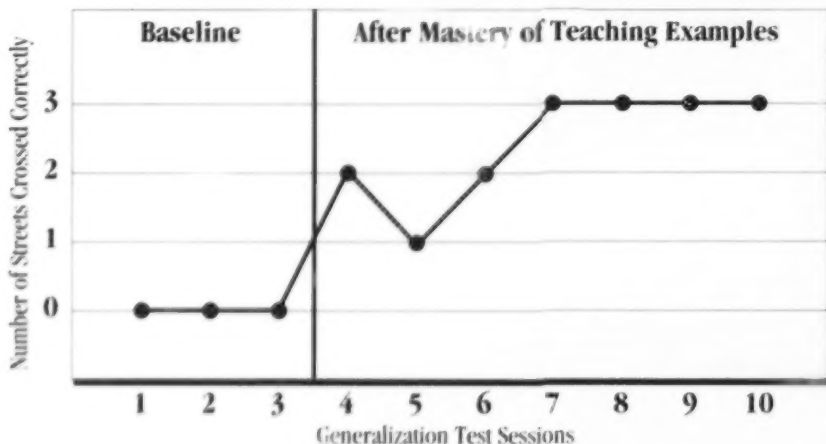
For example, prior to instruction using the teaching example streets in Table 7, you would accompany the individual to the three generalization test example streets shown on the right side of the table. You would record performance on each of these three intersections, noting a correct crossing only if the individual completed the entire sequence without any assistance from you. If a step is performed incorrectly, note this information and do not attempt to correct performance. (Of course, if an error leads to a dangerous situation such as entering a street with traffic, stop the person. Then simply proceed to the next test street.) Graph the performance on test examples to allow you to analyze this performance data.

Once the individual has mastered most of the teaching examples, observe the learner again in the test example situations/settings. A sample graph of performance on generalization test examples for street crossing is shown in Figure 1.

This graph shows that, before you started instruction at three teaching example intersections (baseline), the individual was unable to cross successfully at any of the three corresponding generalization test intersections. After the individual had mastered the three teaching examples, his ability to cross the test intersections

Figure 1

### Sample Graph of Performance on Three Test Streets



increased until he could cross all three. In other words, generalization to these new streets has occurred, and you can feel more confident that he will be able to cross similar streets in the future.

As mentioned above, learners may develop consistent error patterns detected through the generalization test examples. For example, an individual may consistently stand too close when greeting people or always push the button at a certain position on a vending machine. These errors provide valuable information to you about how to revise instruction by changing your approach to prompting, error correction, or reinforcement. Consistent error patterns may indicate that the individual is failing to note and respond correctly to essential cues. In this case, you will want to use more effective prompting strategies that highlight the important cues and distinguish them from similar but irrelevant cues. Using probe examples allows you not only to test

for generalization, but also to gather information for revising teaching approaches.

Finally, as a follow-up, once generalization has occurred with the test examples, I recommend that you identify additional examples and note performance on them. This approach will increase the confidence that the individual has developed truly generalized responding.

### Benefits of Using General-Case Instruction

The general-case approach as described above involves effort and time. You may be reluctant to use this strategy because it appears to be complex. But before you discount the strategy, reconsider the highly practical basic concept behind general-case programming: the need to teach someone to respond to the variation that exists in different environments. This section

Horner and Albin (1988) stated that efficiency of instruction is an important concern for teachers and other practitioners. They defined efficiency as (1) the number of teaching trials to reach criterion; (2) the amount of teacher time per student; (3) the average amount of student time to reach criterion; and (4) the dollar costs of materials, supplies, travel expenses, and staff time to reach criterion. Using unsystematic approaches to teaching generalized skills will be more inefficient in the long run. That is, although general-case instruction may require investigative time up front, it can save time and money.

provides a rationale for using general-case instruction.

The first benefit of general-case programming is that it increases instructional efficiency. Instead of wasting time and energy in finding teaching materials or situations that may not benefit learners you support, you can select the specific range of situations that will provide the most benefit to each individual. With the investment of a preinstruction analysis, as described in this chapter, instruction becomes focused and relevant. This approach provides you with a structure that makes the best use of your limited planning and instructional time.

A second benefit of this strategy is its potential use across a wide range of target behaviors. Previous research focused on motoric behaviors. Current research, applying general-case programming to language and social interaction skills, greatly expands the potential for the strategy's use. This strategy clearly can be used to teach activities needed for success at home, at the work place, and in community environments.

A final incentive is perhaps the most important. Our role as practitioners is to support people with disabilities in living lives as integrated as possible, lives that reflect their choices. General-case instruction is a simple but powerful teaching tool to help accomplish this outcome.

## Strategies for Organizing and Simplifying

Consider these few guidelines for keeping the use of general-case instruction as simple as possible. First, effective information gathering and recording techniques are essential. Appendix A includes a blank set of forms that can be used to record information in response to the questions listed in this chapter. Organizing information in this manner will allow you to make better decisions about the selection of teaching and test examples.

Second, it is important to focus data collection efforts on learners' performance on test (probe) examples. Graphing this performance, as shown in the example in Figure 1, allows you to assess whether or not (and to what degree) generalization has occurred. It is recommended that this graph display baseline data (before general-case instruction) and data collected after most or all of the teaching examples have been mastered.

Third, maintain a record of the types of errors that are made. Although the format for this recording can vary, error patterns cannot be

Asserting the importance of generalized language skills as a functional alternative to challenging behavior, O'Neill and Reichle (1993) argued for the use of a general-case approach to teaching language skills.

detected and corrected if information is not recorded.

A final recommendation: Consider when real materials could be used in a school or center-based setting to augment community-based instruction. Note that instruction in noncommunity-based settings should never replace active and frequent community-based instruction. And some activities do not lend themselves at all to school or center-based teaching. But for some activities, real materials selected through a general-case analysis of a specific environment could be incorporated into instruction to allow more exposure to the examples than would be possible with community-based teaching alone. For example, photographs or videotapes of the use of different automatic teller machines (ATMs) could augment actual experience in the community.

Chadsey-Rusch, Drasgow, Reinoehl, and Halle (1993) conducted a study in which general-case strategies were used to teach students with severe disabilities to request assistance across a variety of situations. General-case instruction resulted in improved generalized responding and was superior to instruction using single examples.

## Illustrated Case Example

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*This brief case study illustrates how general-case instruction might be used across two different behaviors and across domains of living.*



This case example will illustrate the use of general-case instruction with an adult with mental retardation. In this case study, the general-case approach is illustrated to emphasize its use across a range of activities. First, a brief profile of James, an adult with extensive support needs.

### Meet James

James is 30 years old, experiences mental retardation, and requires extensive supports. He lives in an apartment with a roommate in a large town in the Northeast. Through a local supported living agency James and his roommate receive assistance for specific activities within their apartment. James works at a nearby restaurant, where he buses tables and cleans and stacks dishes in an industrial dishwasher with support from an employment specialist. James works 5 days—35 hours—per week. James can walk to work, but currently requires assistance to do so. In his free time, James likes to walk to the local movie theater. He also likes to rent movies for home viewing. Each weekend he visits his family across town, which requires him to use a local bus. He enjoys going out to eat at a fast-food restaurant. James requires assistance with all of these activities. He also goes grocery shopping in a supermarket on weekends with the help of his supported living staff. Finally, James goes to a convenience store to buy small quantities of groceries such as milk and bread that need to be purchased more frequently.

James's Individualized Habilitation Plan (IHP) identifies a number of objectives relating to skills to be learned, including:

- Walking independently within his community, to work, to the movie theater, to the store, to the restaurant, and to the video store.
- Responding appropriately to the greetings of co-workers at his work site.
- Dressing independently for work each day.
- Taking buses to his parents' home and to other locations in his community that are not accessible by walking.
- Independently busing tables within the restaurant.
- Paying for small purchases in local stores for amounts under \$10.00.

The activities that are reflected in James's IHP cover the domains of employment, home living, and community participation. All activities specified above could be taught through a general-case approach. In this chapter, two activities (making small purchases and responding appropriately to the greetings of others) are used for illustration.

## **Illustration of Making Small Purchases**

### **Step 1: Define the Range**

*Question: What activity does the individual want or need to learn and in what specific geographic locations will the activity need to be performed?*

James's instructors determine that, for his skills to be functional, James must be able to pay for small purchases in any store within a six-block radius of his home.

### **Step 2: Document the Variation**

*Question: What variation exists in the important steps of the activity and in the cues for implementing each step?*

James's supporters conduct an analysis of all stores within a six-block radius. They develop a general-case matrix to summarize all information they have gathered. This completed matrix is shown in Table 8.

### **Step 3: Select Examples**

*Question: What minimal number of teaching examples and corresponding testing examples should be selected that contain the most variation?*

From their analysis of the matrix, James's instructors select three stores in which to teach the activity of making purchases under \$10.00. These stores are selected because they reflect variation in the important generic cues of size of the store, number of checkout aisles, number of other customers in line, and the location of cash registers. Three corresponding stores are selected as generalization test examples. Descriptions of the teaching stores and the corresponding testing stores are found in Table 9.

### **Step 4: Sequence the Teaching Examples**

*Question: How should the teaching examples be sequenced to best emphasize variation and to distinguish correct responding from incorrect responding?*

Initially, teaching is conducted on teaching examples 1 and 2. Once James begins to learn these, store 3 will be incorporated into instruction. Negative teaching examples, such as approaching the courtesy desk instead of the checkout, will be contrasted with positive teaching examples. In addition, potential exceptions,

Table 8  
**Completed General-Case Matrix Form:  
Making a Small Purchase**

| Generic Cues                                                                  | Variation in Cues                                                                                                        | Generic Responses                                                          | Variation in Responses                                                                 | Exceptions                                                 |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>STEP 1</b><br>Checkout area                                                | Location of checkout area<br>Number of aisles                                                                            | Locate & go to checkout area.                                              | Stand in line.<br>Stand by cash register.                                              | Register closed                                            |
| <b>STEP 2</b><br>Counter space in front of purchaser                          | Other items on counter<br>Presence of other customers<br>Size of counter                                                 | Place items on counter or conveyor & wait for total cost.                  | Put all items on counter.<br>Put only a few items on counter until more space is free. | Other items in the way                                     |
| <b>STEP 3</b><br>All items on counter & touched, moved, or scanned by cashier | Items by themselves<br>Items separated from those of other customers<br>Items moved by cashier<br>Items bagged by bagger | Listen for or read total amount.                                           | Read total.<br>Listen for total.                                                       | Incorrect cost shown.<br>Cashier does not state total cost |
| <b>STEP 4</b><br>Register total<br>Cashier statement                          | On cash register<br>On separate display<br>Color & size of numbers<br>Specific statements by cashier (e.g., "\$2.50")    | Retrieve money & hand cashier one dollar more than dollar amount in total. | Type of wallet or pocketbook.<br>Place money on counter.<br>Place money in hand.       | Insufficient money                                         |
| <b>STEP 5</b><br>Money handed back by cashier                                 | Change handed as lump sum<br>Change counted out                                                                          | Receive and put away change.                                               | Type of wallet or pocketbook.                                                          | Cashier counts incorrectly                                 |
| <b>STEP 6</b><br>All items in bag                                             | Type of bag<br>Bag on counter or handed by the cashier<br>Other items on counter                                         | Retrieve bag & leave the counter area.                                     | Grasp handle on bag.<br>Hold underneath bag.                                           |                                                            |

such as a register being closed, will be incorporated into teaching.

### ***Step 5: Teach Using the Teaching Examples***

*Question: What instructional strategies should be used to assist the individual in learning to complete the teaching examples most quickly and efficiently?*

James will be taught using a least-to-most-intrusive prompting sequence consisting of a nonspecific verbal prompt ("What should you do next?"), followed by a specific verbal prompt ("Give the money to the cashier"), and then gestural prompts. Prompts will be systematically faded as James masters steps of the task analysis.

Table 9

## Selected Stores for Teaching and for Testing for Generalization: Purchasing Skills

### Teaching Examples:

1. *Kinsleys Market*: 15 checkout aisles; busy cashiers; automatic conveyor belts; cost display on separate screen
2. *WAWA*: Central checkout station with two counters; busy, cash register behind counter; fixed counter; cost display on cash register
3. *48 Hours Video*: One checkout counter with one or two cashiers; cash register behind counter; fixed counter in back corner of store; no identifiable aisle

### Generalization Test Examples:

1. *Mr. Z's Market*: 13 checkout aisles; busy cashiers; automatic conveyor belts; cost display on separate screen
2. *Exxon Quick Check*: Central checkout station with one counter; busy, cash register behind counter; fixed counter; cost display on cash register
3. *Fireside Video*: One checkout counter with one cashier; cash register behind counter; fixed counter in middle back of store; no identifiable aisle

### Step 6: Test for Generalization

*Question: How many of the generalization test examples is the individual able to complete before and after mastery of the teaching examples, and what error patterns are noted?*

When James's instructors collect data on his performance, they will record and graph the number of completed successful attempts at paying for small purchases. Because completing only certain steps of the activity is not the objective, data recorded for test examples will be graphed to show the number of stores in which the full task was performed correctly. The instructors will note specific error patterns, such as failing to retrieve his wallet, failing to locate the cash register, or handing money to another customer. In James's log anecdotal data will be recorded about his performance in any new stores. All staff who support him will be alerted to note this performance.

### Illustration of Responding to Greetings

#### Step 1: Define the Range of Situations

*Question: What activity does the individual want or need to learn and in what specific geographic locations will the activity need to be performed?*

For the activity of responding to greetings, James needs to respond by saying "Hi," "Hello," "Good morning," or "I'm fine" to any co-worker or supervisor who greets him at his work site. James's instructors determine that this objective will be most functional if used in all locations within his place of work.

Table 10

## Completed General-Case Matrix Form: Responding to Greetings of Co-workers

| Generic Cues                                          | Variation in Cues                                                                                                          | Generic Responses                                                      | Variation in Responses                                                   | Exceptions                            |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------|
| <b>STEP 1</b><br>Sound or sight of co-worker greeting | Specific statement (e.g., "How's it goin'?")<br>Waves, nods                                                                | Listen to or see greeting of co-worker and look at and face co-worker. | Turn to look<br>Look up                                                  | Failure to see or hear greeting       |
| <b>STEP 2</b><br>Sight of co-worker                   | Co-worker stopped<br>Co-worker walking<br>Co-worker facing<br>Co-worker facing away<br>Number of other workers in the area | Make a response to the greeting                                        | Wave<br>Nod<br>Extend hand<br>Varied verbal responses ("OK"; "Hi, Reg.") | Co-worker cannot see or hear response |

### Step 2: Document the Variation

*Question: What variation exists in the important steps of the activity and in the cues for implementing each step?*

James's instructors conduct an analysis of potential interactions within his work place. They develop a general-case matrix to summarize all information they have gathered. This completed matrix is shown in Table 10. They note that exceptions may occur that need to be incorporated into instruction.

### Step 3: Select Teaching and Testing Examples

*Question: What minimal number of teaching examples and corresponding testing examples should be selected that contain the most variation?*

From their analysis of the matrix, they select three specific people in the work site as the teaching examples. These examples are selected because they reflect variation in gender, context, personal habits of response, and potential low

probability of errors or exceptions. Three corresponding people are selected as generalization test interactions. The description of the three teaching examples and three probe examples is found in Table 11.

### Step 4: Sequence the Teaching Examples

*Question: How should the teaching examples be sequenced to best emphasize variation and to distinguish correct responding from incorrect responding?*

It is determined that instruction for the three example interactions will begin simultaneously and will be interspersed. In addition, as exceptions occur, such as people failing to respond because they did not hear, they will be incorporated into instruction.

### Step 5: Teach Using the Teaching Examples

*Question: What instructional strategies should be used to assist the individual in learning to*

Table 11

## Sample People for Teaching and for Testing for Generalization: Responding to Greetings

### Teaching Examples:

1. Bill, in the production area at the work site: varied, "joking" greetings ("How's it goin'?" "Keeping busy?" "Wake up, James!")
2. Maria, in the office: quiet, friendly greetings ("Good morning, James. How are you doing today?")
3. Cynthia, in the cafeteria: nonverbal greetings only, primarily nods, occasionally with smiles

### Generalization Test Examples:

1. John, in the production area: varied greetings ("How's it goin'?" "What's goin' on?")
2. Roger in the cafeteria: verbal and nonverbal greetings ("Hey, James"; nods, waves)
3. Stella in the office: verbal and nonverbal greetings ("Good morning"), usually with a nod and without a smile

*complete the teaching examples most quickly and efficiently?*

James will be taught using a least-to-most-intrusive prompting sequence consisting of a nonspecific verbal prompt ("What should you say?"), followed by a specific verbal prompt ("James, say hi to Marge"). Prompts will be systematically faded as James masters steps of the task analysis.

### **Step 6: Test for Generalization**

*Question: How many of the generalization test examples is the individual able to complete before and after mastery of the teaching examples, and what error patterns are noted?*

As James's instructors collect data on his performance, they will record and graph the number of completed successful responses to a greeting. The instructors will also note specific

error patterns such as failing to respond, looking away, using the name of another individual, etc. Finally, in James's log anecdotal data will be recorded about his performance in new situations in which responses to greetings are required. Again, all support staff will be alerted to make note of this performance.

## Summary

This brief case study illustrates how general-case instruction might be used across two different behaviors and across domains of living. Readers should note the impact that successful instruction on purchasing and responding to the greetings of others would have on James's life. Likewise, instruction that could result in generalized responding in the other areas identified as target behaviors would greatly benefit James and enhance the quality of his life.

## Summary

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***With systematic use of general-case instruction, we can have increased confidence that people we support will develop generalized skills.***



In this book, general-case instruction, a strategy used to teach generalized skills to people with mental retardation, has been introduced. It is a powerful and effective approach to teach people to respond correctly to the variation that exists in everyday life. With systematic use of general-case instruction, we can have increased confidence that people we support will develop generalized skills.

This book has described a set of six guidelines or steps in using general-case instruction, as developed by Horner and his colleagues. Discussion of each guideline answers a specific question. Appendix A contains a set of forms to help you walk through the teaching steps. These materials are adapted from previously published materials on general-case instruction and are offered to simplify and guide you in implementing the process.

It is clear that general-case instruction takes time and energy. But there are clear benefits to the investment. First, research has suggested that instruction is more efficient in terms of time and money than haphazard, incidental teaching, assuming that the intent of instruction is to assist learners in developing generalized abilities. Second, learners will be better able to respond correctly to new situations that arise without reintensifying support from educators or rehabilitation professionals. This is a major benefit in supported employment and supported living situations, allowing the intensity of supports to be systematically reduced. A third benefit: Through the completion of the general-case analysis,

instructors will learn more about the variation that exists in most environments; this information will, in turn, influence the content of instruction and curricula. Fourth, it should be clear from this book that the general-case approach can be used with a wide variety of activities and skills across all domains of adult life. In fact, general-case research has documented its use with academic and social skills of people with limited support needs; work, home, and community activities with people with extensive and pervasive support needs; and most recently, social interaction behaviors with people with extensive and pervasive support needs. This body of research documents a flexible approach that is generic and

can be used to support people in their homes, their places of work, and their communities.

Finally, the most important benefit of using general-case instruction is that it increases choices and options open to people with mental retardation as they learn to respond to the variation in their community. Knowing only one way of doing an everyday activity leads to dependence and vulnerability. Having generalized abilities that allow one to be successful in the face of variation and change leads to increased opportunities and independence. These outcomes are well worth the effort needed in implementing general-case instruction.

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## **Appendix A**

### **Forms for Use in Conducting a General-Case Analysis**

## Task Analysis Form: Generic Cues and Responses

### GENERIC CUES:

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

### GENERIC RESPONSES:

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

Form 2

## Variation in Cues for Examples Investigated

VARIATION IN CUES ACROSS...

| GENERIC CUES | GENERIC RESPONSES | EXAMPLE 1: | EXAMPLE 2: | EXAMPLE 3: |
|--------------|-------------------|------------|------------|------------|
| STEP 1       | STEP 1            |            |            |            |
| STEP 2       | STEP 2            |            |            |            |
| STEP 3       | STEP 3            |            |            |            |
| STEP 4       | STEP 4            |            |            |            |
| STEP 5       | STEP 5            |            |            |            |

Form 3

## Variation in Responses for Examples Investigated

VARIATION IN RESPONSES ACROSS...

| GENERIC CUES | GENERIC RESPONSES | EXAMPLE 1: | EXAMPLE 2: | EXAMPLE 3: |
|--------------|-------------------|------------|------------|------------|
| STEP 1       | STEP 1            |            |            |            |
| STEP 2       | STEP 2            |            |            |            |
| STEP 3       | STEP 3            |            |            |            |
| STEP 4       | STEP 4            |            |            |            |
| STEP 5       | STEP 5            |            |            |            |

Form 4  
**General-Case Matrix Form**

VARIATION IN RESPONSES ACROSS...

| GENERIC CUES | VARIATION IN CUES | GENERIC RESPONSES | VARIATION IN RESPONSES | ERRORS/EXCEPTIONS |
|--------------|-------------------|-------------------|------------------------|-------------------|
| STEP 1       | STEP 1            |                   |                        |                   |
| STEP 2       | STEP 2            |                   |                        |                   |
| STEP 3       | STEP 3            |                   |                        |                   |
| STEP 4       | STEP 4            |                   |                        |                   |
| STEP 5       | STEP 5            |                   |                        |                   |

## Description of Selected Examples for Teaching and for Testing for Generalization

### Teaching Examples:

|    |
|----|
| 1. |
| 2. |
| 3. |

### Generalization Test Examples:

|    |
|----|
| 1. |
| 2. |
| 3. |

## About the Author

**DANIEL E. STIERE** received his Ph.D. from the University of Connecticut in 1987. He is an assistant professor of special education and rehabilitation at Eastern Connecticut State University in Plainville, CT. His research includes employment for people with disabilities, the development of quality management systems, and instructional technology. He additionally has a particular interest in teaching through peer service and in a research focus on the needs of students who work with cognitive disabilities.

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